

## Remarks

### Summary of Office Action

Claims 13-29 were pending.

Claims 13-29 have been rejected under 35 U.S.C. § 112, first paragraph, as introducing new matter. Claims 14 and 29 have been additionally rejected under the same paragraph as failing to comply with the enablement requirement. Claims 13-29 also have been rejected under 35 U.S.C. § 112, second paragraph, as vague and indefinite.

Further, claims 13, 16, 17, 24, 26, and 27 have been rejected under 35 U.S.C. § 102(e) as being anticipated by Wang et al. U.S. Patent No. 6,468, 785 (“Wang”) and by Braun et al. International Publication No. WO 99/04440 (“Braun”).

The Examiner also has objected to the title of the specification as being non-descriptive.

### Summary of Applicants’ Reply.

Applicants have amended the Title to read: “DNA-based Electronics”. Applicants respectfully submit that this Title sufficiently and accurately describes the claimed invention.

Applicants have amended claims 13-17 and present new claims 30-36 to further clarify the invention. Claims 18-29 have been cancelled without prejudice to applicants’; right to pursue the subject matter in continuing or other applications.

Applicants respectfully traverse the § 112 and § 102 rejections.

### § 112 rejections

Applicants have amended the claims 13-17 and present new claims 30-36 for examination. No new subject matter is added.

Applicants note that the term “M-DNA” is widely used and understood in the art as referring conductive DNA, which may be formed by complexing metal ions with DNA. (See

e.g., specification, page 4 lines 7-11, page 9 lines 5-30). Applicants further note that all claim terms have proper antecedent basis (e.g., active core: page 9, lines 8-20; M-DNA: page 4 lines 7-11; etc.).

Applicants respectfully submit that the pending claims 13-17 and 30-36 are clear, enable, and conform to all requirements of § 112.

§ 102 rejections.

The pending claims were rejected as anticipated by Wang and by Braun. Applicants respectfully traverse.

Independent claims 13 and 30

Following Examiner's kind observation that the previous claims did not include a recitation of transistor functionality (Office Action, page 5), applicants have amended the claims to include a recitation of device functionality. Claim 13, for example, includes the recitation that the "third segment is configured to electrically modulate current flowing across said active core"

As previously submitted, neither Wang nor Braun show, teach or suggest using a length of a DNA molecule as the "active core" of a transistor (claim 13) or a gated electronic device (claim 30).

Braun describes only using DNA molecules to form a template or support structure to shape other electronic materials to make a micro-electronic device. (See Braun, Summary of Invention, page 3). Braun's DNA material, which is used as scaffolding, is removed after device formation. (See e.g., Braun page 18 lines 10-15). Braun does not show, teach or suggest use of the DNA material itself as the active device material.

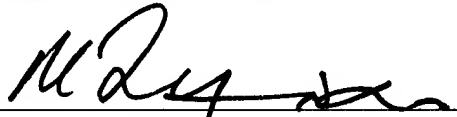
Wang, like Braun, fails to show, teach or suggest use of the DNA material itself as the active device material. Wang only describes apparatus and methods for detection of DNA hybridization and nucleic acids in flowing streams based on "monitoring changes in electronic or interfacial properties accompanying a DNA hybridization event." (See e.g., Wang, Abstract, and col. 2 lines 32-34, etc.).

For at least the foregoing reasons, claims 13 and 30 are patentable over Braun and Wang. Further, dependent claims 14-17 and 31-36 are patentable for at least the same reasons.

Conclusion

This application is now in condition for allowance. Reconsideration and prompt allowance of which are requested. If there are any remaining issues to be resolved, applicants respectfully request the Examiner to kindly contact the undersigned attorney by telephone for an interview.

Respectfully submitted,



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